

WHAT IS CLAIMED IS:

1. An electroacoustic transducer, comprising:
a driver; and
an acoustic horn having an acoustical impedance matched with impedances
5 of an ear and the driver.
2. The electroacoustic transducer as set forth in claim 1, further
comprising a plate disposed proximate a large end of the horn, the plate having one
or more holes therein.
3. The electroacoustic transducer as set forth in claim 1, wherein the
10 driver includes a driving membrane.
4. The electroacoustic transducer as set forth in claim 3, wherein the
driving membrane has a diameter less than 1 mm in diameter.
5. An acoustic horn having an acoustic impedance matched with
impedances of an ear and a driver.
- 15 6. The acoustic horn as set forth in claim 5, further comprising a plate
disposed proximate a large end of the horn, the plate having one or more holes
therein.

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7. A portable device, comprising:

- a body;
- a driver mounted inside the body; and
- an acoustic horn having an acoustical impedance matched with that of an ear and the driver, a large end of the horn extending to a position on an exterior surface of the body.

8. The portable device as set forth in claim 7, further comprising a plate disposed proximate a large end of the horn, the plate having one or more openings therein.

9. The portable device as set forth in claim 8, wherein the plate is mounted on the body.

10. The portable device as set forth in claim 7, wherein the horn is integrally formed with the body.

11. The portable device as set forth in claim 7, wherein the driver comprises a driving membrane.

12. The portable device as set forth in claim 11, wherein the driving membrane has a diameter less than 1 mm in diameter.

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12. The portable device as set forth in claim 11, wherein the driving membrane has a diameter less than 1 mm in diameter.

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14. The portable device as set forth in claim 13, wherein the telephone device further includes a microphone arrangement.

16. The portable device as set forth in claim 15, wherein the body forms at least part of a writing instrument.

18. The portable device as set forth in claim 7, wherein the body forms at least part of a pager.

19. The portable device as set forth in claim 7, wherein the body forms at least part of a personal digital assistant.